

## A STUDY OF THE GENUS *HYBOMISCHOS*

(HYMENOPTERA: ICHNEUMONIDAE)

by  
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*Hybomischos* was originally described by Baltazar (1961), as a subgenus of *Perithous*. However, the differences in the nature of the ovipositor tip, notauli, first tergite, etc., justify its generic separation. Baltazar described from the Philippines two species: *Perithous (Hybomischos) galbus* and *virgulatus*. Townes et al. (1965) placed in it a Eurasian species, *septemcinctorius* Thunberg. Constantineanu and Constantineanu (1968) described five additional taxa from Rumania (*septemcinctorius rufatus*, *romanicus romanicus*, *romanicus rufigaster*, *transversus transversus* and *transversus trapezoidalis*). *Perithous exiguus* Haupt, *P. brunnescens* Koornneef, and *P. septemcinctorius meridionator* Aubert were synonymized with *septemcinctorius* by Oehlke (1966, 1967). In the Townes Collection, there are specimens of *septemcinctorius* from Europe and North America, type of *galbus* from the Philippines, and specimens of an undescribed species from Japan, which is described below as *Hybomischos townesorum*, n. sp. The type of *virgulatus* Baltazar has been examined in the U. S. National Museum, Washington. The species from Rumania are unknown to me.

### Genus *HYBOMISCHOS* Baltazar

*Perithous (Hybomischos)* Baltazar, 1961. Monogr. Natl. Inst. Sci. & Tech. Manila, 7: 49. Type-species: *Perithous (Hybomischos) galbus* Baltazar; original designation.

Taxonomy: Townes et al., 1965: 69. Constantineanu & Constantineanu, 1968: 250. Aubert, 1969: 101 (as a syn. of *Perithous*). Constantineanu & Pisică, 1977: 92 (as a separate genus).

Rather similar to *Perithous*, but lower mandibular tooth acute. Upper tooth with a wider cutting edge. Eyes emarginate just above antennal sockets. Notauli absent. Apical propodeal carina absent to faintly visible. Propodeum strongly convex, granulose to sparsely or distinctly punctate, usually with a weak or fairly distinct median groove. Submetapleural carina forming a flange along anterior half of metapleurum, absent posteriorly (type-species), or bent inwards toward posterior metasternal carina, which is, however, weak and not fully formed. Sometimes submetapleural carina appears forked posteriorly due to a carina-like rugosity connecting it to the hind coxal cavity. Nervellus intercepted at or above the middle. First abdominal tergite flat or convex dorsally, granulose or punctate, its median dorsal carinae absent, but at base forming lateral tooth-like projections. Spiracle of first tergite below and

and distant from the dorsolateral carina. Ovipositor about 1.4 to 2.0 the body length, its tip strongly compressed and sinuate; teeth on lower valve weaker, subvertical to semicircular; upper valve with saw-like teeth on upper edge.

*Hybomischos* has the same type of ovipositor as does *Atractogaster i.e.*, the tip being sinuate. The latter genus, however, is distinct in having the lower mandibular tooth longer than the upper, clypeus with a median subapical point, spiracle of first tergite situated just above the dorsolateral carina and touching the same, eyes only very slightly emarginate (as in *Perithous*), and propodeum with a semicircular carina separating a smooth petiolar area (as in *Perithous*). *Perithous* is further distinguished from *Hybomischos* by the presence of notauli, absence of lateral tooth-like projections at base of first tergite, spiracle of first tergite touching or almost close to the dorsolateral carina, and ovipositor tip different and not sinuate.

Biological references on *Hybomischos* are few and deal mainly with host records of the European *H. septemcinctorius*, which are larvae of aculeate Hymenoptera, similar to those parasitized by species of *Perithous*. Nothing is known about the larval morphology.

Species of *Hybomischos* appear to form two species groups: In *septemcinctorius* and *townesorum*, the nervellus is intercepted at the middle (or just above it), antennal flagellum is shorter and thicker, about 0.5 the body length, male flagellum is with tyloids, teeth on ovipositor tip angled at 60°, and submetapleural carina appears forked posteriorly. In *galbus* and *virgulatus* (both from Philippines), the nervellus is intercepted above the middle, flagellum is as long as the body and slender, submetapleural carina is not forked posteriorly, and teeth on ovipositor tip angled at 30° from the horizontal. The males are unknown. The Rumanian species are unknown to me.

## 1. HYBOMISCHOS GALBUS (Baltazar) (figs. 1-3)

*Perithous (Hybomischos) galbus* Baltazar, 1961. Monogr. Natl. Inst. Sci. & Tech. Manila, 7: 50. ♀. Key, des., fig. Type ♀, Philippines: Luzon, Nueva Ecija, Sierra Madre Mts. (TOWNES). Examined, 1980. Paratype ♀, Luzon, Laguna, Mt. Bahanao.

This and the other Philippine species (*virgulatus*) are readily distinguished from *H. septemcinctorius* and *townesorum*, n. sp., by the characters mentioned under species groups. Baltazar (1961) has provided a key to distinguish the two.

*H. galbus* is characterized by having a yellowish body color with abdomen a little brownish, without any black marks. First tergite convex dorsally (fig. 1) and granulose. Flagellum long and slender, about as long as the body. Teeth on lower valve of ovipositor semicircularly arched and the basal tooth very much slanting, making an angle of 30° with the horizontal axis. Nervellus intercepted above the middle. Propodeum granuloso-punctate, with a distinct basomedian groove. Abdominal tergites 2-5 coarsely punctate.

*Distribution*: Philippines: Luzon. Known so far by the type-specimens only.

## 2. HYBOMISCHOS VIRGULATUS (Baltazar)

*Perithous (Hybomischos) virgulatus* Baltazar, 1961. Monogr. Natl. Inst. Sci. & Tech. Manila, 7: 50. ♀. key, des., fig. Type ♀, Basilan (Washington). Examined, 1980.

Readily distinguished from *galbus* by having three black stripes on meso-scutum. Frons in middle, ocellar region, tubercles on abdominal tergites, and middle of first tergite also black. First abdominal tergite flatter dorsally and shiny. Propodeum with only a few scattered punctures. Abdominal tergites punctate only laterally. Ovipositor 1.8 x the body length. Otherwise related to *H. galbus*.

*Distribution*: Philippines: Basilan. Known by the type specimen only.

### 3. HYBOMISCHOS SEPTEMCINCTORIUS (Thunberg)

*Ichneumon septemcinctorius* Thunberg, 1922 (1824). Mem. Acad. Imp.

Sci. St. Petersburg, 8: 280; 9: 363. ♀. des. Lectotype ♀, Sweden (Uppsala)

Taxonomy: Oehlke, 1967: 36. Torgersen, 1972: 99. Townes et al., 1965: 70.

This species, originally described under *Ichneumon* from Sweden and first placed under *Perithous* by Roman (1912) is fairly well distributed in Europe and USSR. Constantineanu & Pisică mention Japan also in its distributional range, but I could not find a reference to that effect. Torgerson (1972) reported it from North America for the first time by a single specimen found by him in Ann Arbor, Michigan, in a spider web in his garage. Subsequently, only three more females from North America have been caught: One in Ann Arbor by H. Townes in his garage, one in Ottawa, Canada, at light by him, and another in Canada by Mike Sanborne at Stillville, Ont., in a Malaise trap.

This species is characterized by having flagellum short and a little thick in the middle. Male flagellum with tyloids on segments 9-15. Face sparsely to minutely punctate. Thorax reddish with yellow markings. Propodeum granulate, with a weak median groove. Nervellus intercepted at the middle or at upper 0.4. First abdominal tergite granulate, flat dorsally. Abdominal tergites moderately punctate, punctures well separated from each other. Teeth on lower valve of ovipositor weak and angled at 65° from the horizontal.

*Distribution*: Europe, Russia, North America.

*Hosts*: (From Aubert, 1969): *Andricus quercus-tozae* (Cynipidae); *Omalus auratus* (Chrysididae); *Pemphredon lugubris*, *P. morio*, *Psen* (*Mimumesa*) *dahlbomi*, and *Psenulus fuscipennis* (Sphecidae). These hosts have been reported in Europe.

### 4. HYBOMISCHOS TOWNESORUM, n. sp.

*Female*: Face with scattered punctures, smoother laterally along orbital borders. Frons, vertex, temple, and occiput smooth and shiny, with scattered hairs, particularly on temple. Mesoscutum subpolished and with small hairs. Pronotum, mesopleurum, mesosternum, and metapleurum polished. Mesosternum more hairy than other parts. Submetapleural carina short and flange-like in anterior half and forked posteriorly, one arm of which is continuous with striations along hind coxal cavity. Propodeum strongly convex, apical half almost vertical, punctate; punctures evenly separated and mostly in the middle; its apical transverse carina incomplete and poorly defined; petiolar area smooth. Nervellus intercepted near middle. First abdominal tergite with scattered punctures, which are a little more crowded subapically. Second tergite with sparse scattered punctures. The following tergites progressively less punctate and smoother. Sides of second to fourth tergites with crowded punctures. Ovipositor about 1.35 x as long as the body,

its tip sinuate and strongly compressed. Lower valve with faint or very faint teeth, which are slanting at an angle of  $60^{\circ}$  with the horizontal. Upper valve with 6-7 saw-like teeth on upper edge.

Black. Scape and pedicel yellow ventrally, flagellum brownish-black. Face along orbits, upper orbital borders up to slightly beyond the ocellar area, clypeus wholly, mandible except apically, basolateral corners of mesoscutum, hind corner of pronotum, tegula, subtegular ridge, scutellum except basally, metascutellum, a crescentic mark on propodeum in the region of apical transverse carina, and apices of all abdominal tergites, yellow. Apical mark on first tergite short. Fore and middle coxae and trochanters yellow. Rest of fore and middle legs yellowish-brown, with their femora with brownish patches. Middle femur darker and apices of its tarsal segments blackish. Hind coxa brownish with black mark basodorsally and yellow apically; femur orange-red; tibia and tarsus blackish-brown with basal and apical tarsal segments yellowish-white in basal 0.5 to 0.75.

*Male*: Essentially similar to the female except that face is wholly yellowish-white. Flagellum pale brownish, segments 9-17 with linear tyloids. Second to fourth abdominal tergites more densely punctate. Hind leg lighter in color: coxa yellow apically, femur light orange, tibia whitish medially.

*Length*: ♀, 9 mm. Fore wing 6-7 mm. Ovipositor 11.5-12 mm. ♂, 7.5 mm. Fore wing 5.5 mm.

*Holotype*: ♀, *Japan*: Mt. Norikura, 1600 m, 31-VII-1954, Townes family (Townes).

*Allotype* ♂, *Japan*: Sapporo, 9-VII-1954, Townes family (Townes).

*Paratype* ♀, *Japan*: Kamikochi, 22-VII-1954, Townes Family (Townes).

*Hybomischos townesorum* is related to *H. septemcinctorius* in the nature of nervellus, antennal flagellum and submetapleural carina, but can be readily distinguished by its black thorax, punctate propodeum without a distinct median groove, sparsely punctate first tergite, and the following tergites with scattered shallow punctures and smoother on apical half.

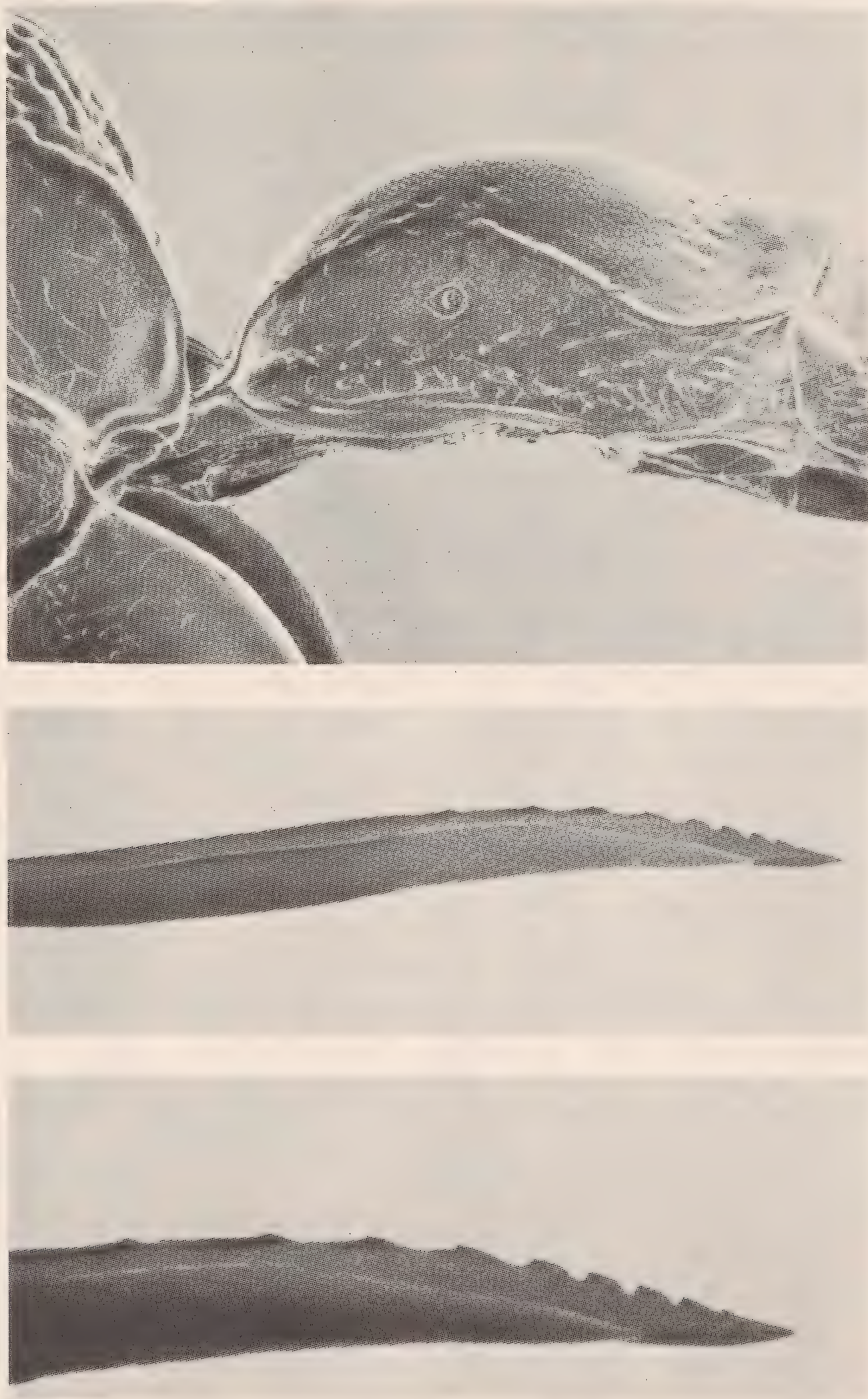
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*Hybomischos galbus* (Baltazar)

Fig. 1